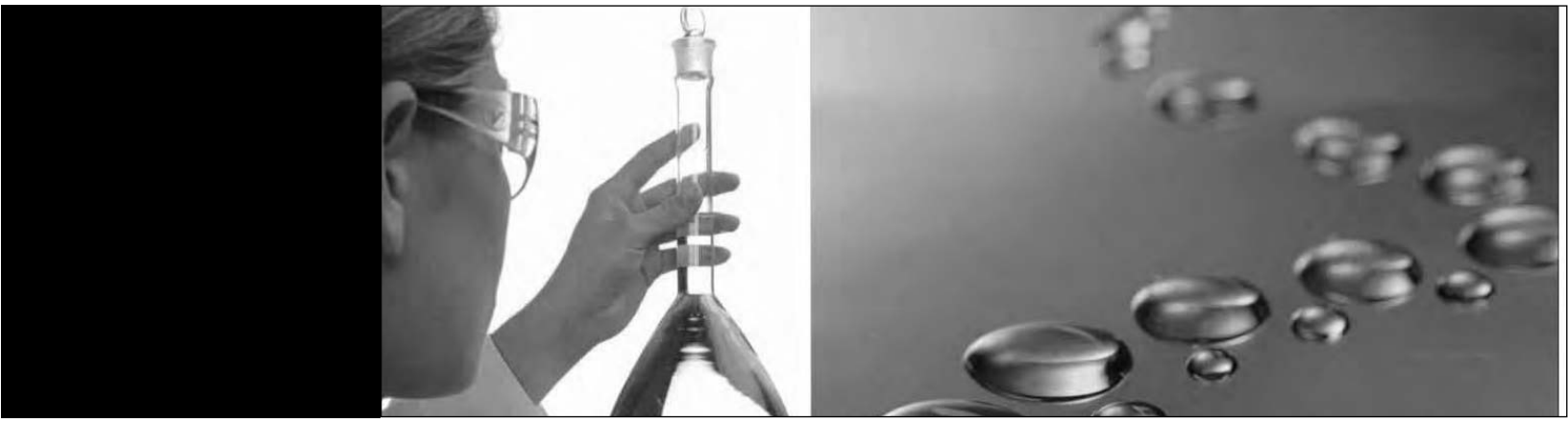
# EASYpure® II Reservoir Feed Water Purification System

**Series 1305**

Operating Manual and Parts List LT1305X1 Rev. 0



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| Models covered in this manual | |
|---|---|
| **Catalog Number (Model Number)** | **Voltage** |
| D7031 (7133) | 100-240V |

**MANUAL NUMBER LT1305X1 (7007133)**

| REV | ECR/ECN | DATE | DESCRIPTION | By |
|---|---|---|---|---|
| 0 | -- | 5/26/10 | Transfer to Marietta (was LT1305X1 7/3/08) | ccs |

**Important** Read this instruction manual. Failure to read, understand and follow the instructions in this manual may result in damage to the unit, injury to operating personnel, and poor equipment performance. ▲

**Caution** All internal adjustments and maintenance must be performed by qualified service personnel. ▲

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Equipment being maintained or serviced must be turned off and locked off to prevent possible injury.

Hot surface(s) present which may cause burns to unprotected skin, or to materials which may be damaged by elevated temperatures.

Marking of electrical and electronic equipment, which applies to electrical and electronic equipment falling under the Directive 2002/96/EC (WEEE) and the equipment that has been put on the market after 13 August 2005.

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# Section 1 Safety Information

Your Thermo Scientific EASYpure® II Reservoir Feed (RF) has been designed with function, reliability, and safety in mind. It is the user's responsibility to install it in conformance with local electrical codes. For safe operation, pay attention to Notes, Cautions, and Warnings throughout the manual.

This manual contains important operating and safety information. The user must carefully read and understand the contents of this manual prior to the use of this equipment.

Water purification technology employs one or more of the following: chemicals, electrical devices, mercury vapor lamps, steam and heated vessels. Care should be taken when installing, operating or servicing Thermo Scientific products. The specific safety notes pertinent to this product are listed below.

**Warnings**

To avoid electrical shock, always:

1. Use a properly grounded electrical outlet of correct voltage and current handling capacity.

2. Do not place your EASYpure II RF directly over equipment that requires electrical service. Routine maintenance of this unit may involve water spillage and subsequent electrical shock hazard, if improperly located.

3. Replace fuses only with the same type and rating of fuse.

4. Do not disassemble water lines or remove catridges where spilled water could contact equipment that requires electrical service. Electrical shock could result.

5. Disconnect from the power supply prior to maintenance and servicing.

**To avoid personal injury:**

1. Do not use in the presence of flammable or combustible materials; fire or explosion may result. This device contains components which may ignite such materials.

2. Do not use in the presence of highly corrosive substances such as bleach or acid baths; fire may result.

3. This device is to be used with water feeds only. Sanitizing/cleaning agents must be used in compliance with instructions in this manual. Failure to comply with the above could result in explosion and personal injury.

4. Avoid splashing disinfecting solutions on clothing or skin.

5. Ensure all piping connections are tight to avoid chemical leakage.

6. Carefully follow manufacturer's safety instructions on labels of chemical containers and material safety data sheets.

7. Refer servicing to qualified personnel.

8. Ensure adequate ventilation.

9. Depressurize system prior to opening cartridge access door or removing top cover.

# Section 2 Introduction

The Thermo Scientific EASYpure II RF is a batch-fed water purification system designed to provide Type I reagent-grade water with extremely low organic carbon content. It uses a three-stage deionization process combined with a 0.2 micron final filter to polish pretreated water (distilled, deionized, or reverse osmosis) to produce water with a resistivity of up to 18.2 megohms-cm and with a total organic carbon content of less than 10 ppb. Water resistivity is continuously sensed by a resistivity cell and displayed on a digital display.

The EASYpure II RF is designed to be a bench mounted unit. If wall mounting is required, contact Technical Services for information on a wall bracket and mounting accessory.

**Figure 1-1.** EASYpure II RF

# Section 3 General Specifications

**Dimension Requirements**

12" W X 19" D X 18 1/8" H (30.5 cm X 48.3 cm X 46.0 cm).

**Clearance Requirements**

Sides - 4" (10.1 cm) minimum to allow air flow

Above - 12" (30.5 cm) minimum for reservoir replenishment

Cartridge replacement requires that the back of the unit be accessible to open the cartridge access door (total depth, unit + open door, = 34") (86.4 cm).

Storage Reservoir Capacity - Approximately 6.5 liters usable, 7.0 liters total

**Electrical Requirements**

The EASYpure II RF is equipped with two power cords and corresponding fuses taped to each power cord to be plugged into a grounded electrical outlet of the appropriate voltage.

Model D7031: 100-240 VAC +5% -10%, 47-63 Hz.

**Feedwater Requirements**

The EASYpure II RF requires water pretreated by either distillation, deionization or reverse osmosis.

TOC . . . . . .Less than 1.0 ppm
Turbidity . . . . . .Less than 1.0 N.T.U.
Temperature . . . . . .40°F - 104°F (4.4°C - 40°C)
Silica . . . . . .Less than 1 ppm
TDS (CaCO3)
RO - Less than 50 ppm
DI - Less than 100 ppm
Distilled - Less than 2 ppm

**Product Water Quality**

Resistivity . . . . . .ASTM Type I
TOC . . . . . .5-15 ppb
Flow Rate . . . . . .≥0.8 LPM with a new final filter

**Environmental Conditions**

Operating . . . . . .4°C - 49°C; 20% - 80% RH, non-condensing.
Installation Category II (overvoltage) in accordance with IEC 664.
Pollution Degree 2 in accordance with IEC 664.
Altitude limit . . . . . .3,500 meters.
Storage . . . . . -25°C - 65°C; 10% to 85% relative humidity.

**Declaration of Conformity**

We hereby declare under our sole responsibility that this product conforms with the technical requirements of the following standards:

EMC
EN61000-3-2 Limits for Harmonic Current Emissions
EN61000-3-3 Limits for Voltage Fluctuations and Flicker
EN 61326-1 Electrical Equipment for Measurement, Control, and Laboratory Use; Part I: General Requirements

Safety
EN 61010-1 Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use; Part I: General Requirements

per the provisions of the Low Voltage Directive 73/23/EEC, as amended by 93/68/EEC.

Copies of the Declaration of Conformity are available upon request.

# Section 4 Unpacking

Remove the unit from its shipping container and ensure that the following items are removed from the packaging materials before discarding:

a) EASYpure II RF unit

b) Ventgard® reservoir cap (CV703X4A)

c) Power cords

d) Operation Manual (LT1305X1)

**Note** Cartridges and the 0.2 micron final filter are not provided with the EASYpure II RF and must be ordered separately:

- EASYpure Kit Ultra low Organics Deionized Feed (No Final Filter) Part No. D502124
- EASYpure Kit Ultra low Organics Distilled or RO Feed (No Final Filter) Part No. D502125
- EASYpure Kit Type I Deionized Feed (No Final Filter) Part No. D502126
- EASYpure Kit Type I Distilled or RO Feed (No Final Filter) Part No. D502127
- 0.2 Micron Final Filter Part No. D3750

# Section 5 Installation

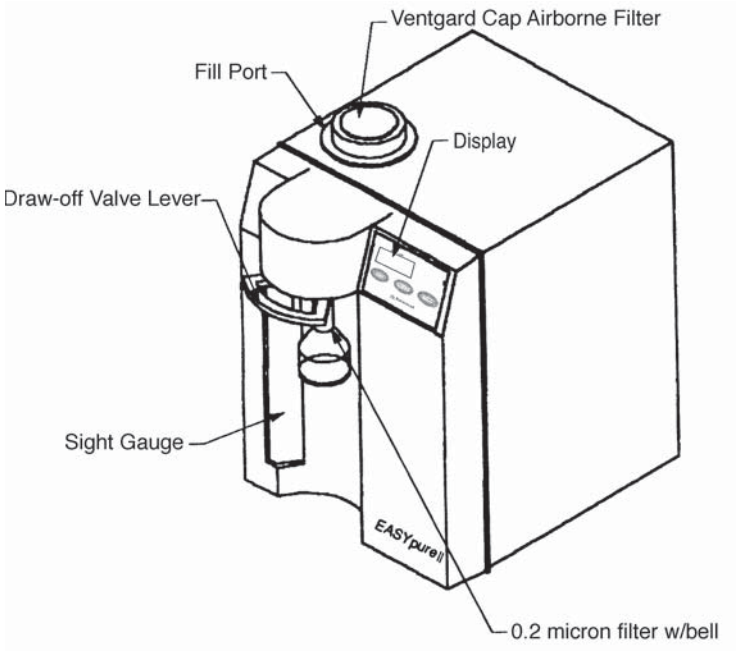



**Figure 5-1.** Front View

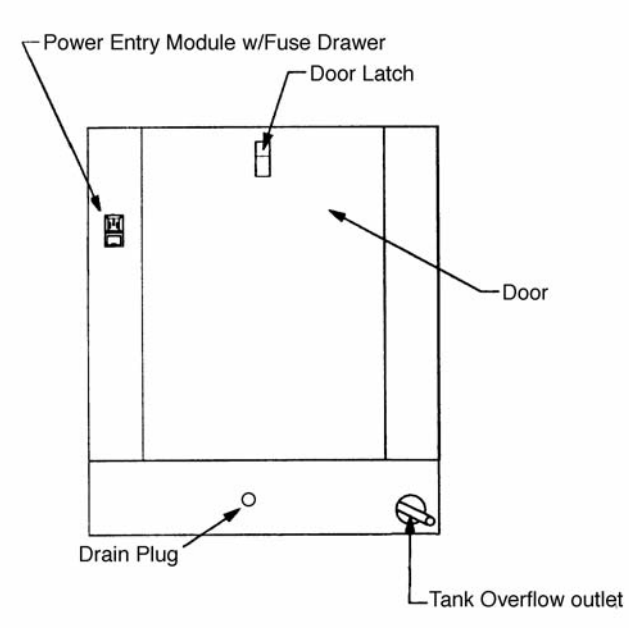



**Figure 5-2.** Back View

## Locating the Unit

1. Place the EASYpure II RF on a bench top convenient to your work area, noting the Clearance Requirements. If wall mounting is required contact Technical Services.
2. Using 1/2" I.D. tubing and tubing connectors (user supplied), connect the overflow drain tubing (lower left corner of the rear of the unit) to an atmospherically vented sink or floor drain. If an atmospherically vented sink or floor drain is not accessible, a bucket or other container may be placed on the floor beneath the EASYpure II RF's location and emptied when full.

**Warning** Do not place EASYpure II RF directly over equipment requiring electrical service. Routine maintenance of this unit may involve water spillage and subsequent electrical shock hazard if improperly located. ▲

**Warning** Do not use in the presence of flammable or combustible materials; fire or explosion may result. This device contains components which may ignite such materials.

**Warning** This device is to be used with water feeds only. Sanitizing/ cleaning agents must be used in compliance with instructions in this manual. Failure to comply could result in explosion and personal injury. ▲

# Cartridge Installation

Refer to Figure 5-3 for the procedure below.

1. Open cartridge access door in the rear of the unit by pushing the door latch down.
2. Remove a new Pretreatment cartridge from its plastic bag.
3. Wet the o-rings with water on both end caps.
4. Press the upper end cap into the pretreatment position until it bottoms out.
5. Lower the cartridge and insert the lower end cap \into the lower socket until it is firmly seated.
6. Repeat Steps 2 - 5 with the Ultrapure cartridge and then the EASYpure High Purity/Low TOC or Ultrapure cartridge, placing them in positions 2 and 3.
7. Close cartridge access door. This serves to verify the cartridges have been properly seated.

**Note** The upper end cap is the one with the right-angle turn and the two flanges. The lower end cap extends straight out from the cartridge.

**Note** The two flanges on the end cap should be able to slide down on each side of the keyway wall.

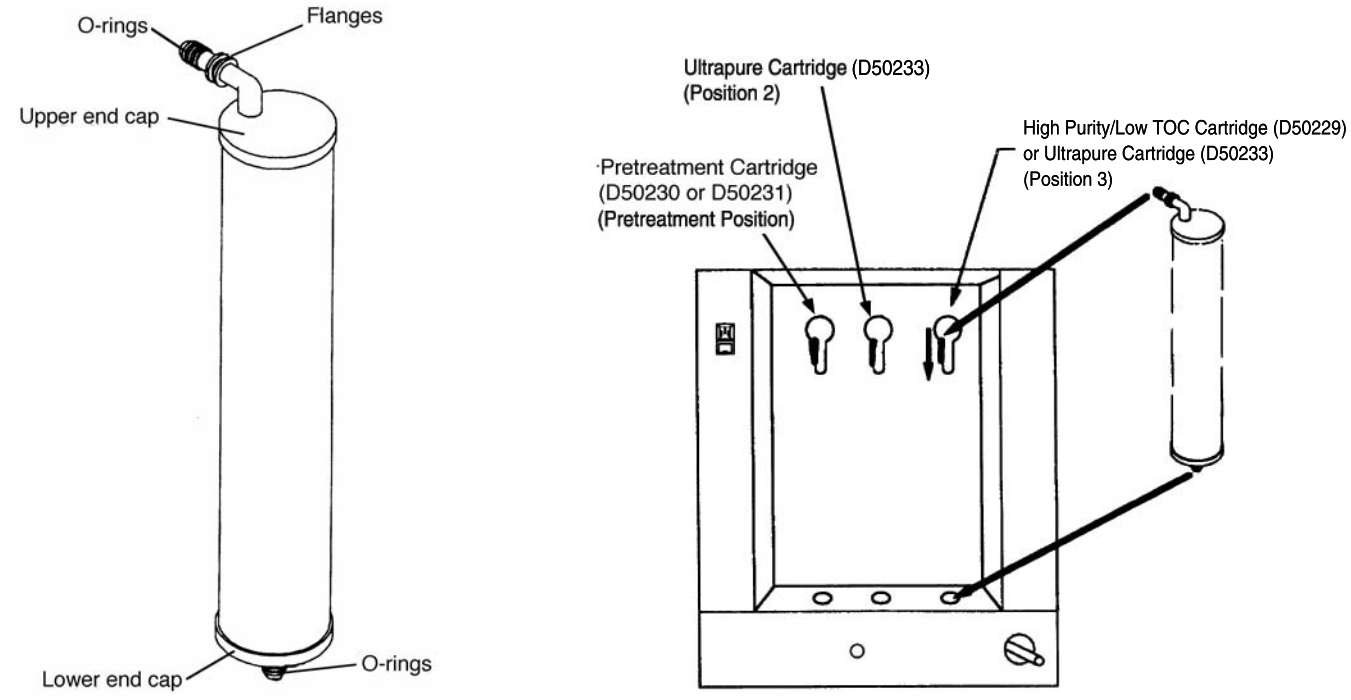



**Figure 5-3.** Cartridge Installation

# Section 6 Controls

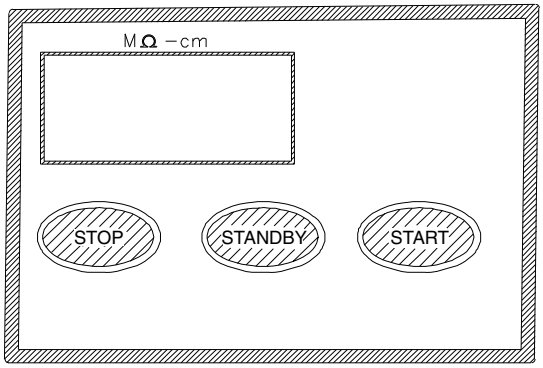



**Figure 6-1.** Control Panel

## Power Switch

The power switch on the EASYpure II RF is located on the back right side of the unit directly above the power cord receptacle.

## Control Panel

The EASYpure II RF control panel incorporates three switches and a digital display.

### Switches

When the main power switch is on, the three switches on the control panel function as follows:

- START: Pressing the START switch when the unit is in either the stop (“IdL”) or standby (“SbY”) mode will put the unit into run mode.
- STANDBY: Pressing the STANDBY switch when the unit is in either the start (run) or stop (“IdL”) mode will put the unit into a standby mode.
- STOP: Pressing the STOP switch when the unit is in either the start (run) or standby (“SbY”) mode will put the unit into a stop (“IdL”) mode.

**Note** On initial power-up, the display will run the following sequence:

- Model type is scrolled -RF

- The display’s LEDs will light up,

- Followed by the unit software revision,

- Finally, IdL will be displayed.

### Display

In addition to displaying the temperature compensated (25°C) resistivity in megohms, the display also indicates operational modes and error indicators. The following is what can appear on the display:

| | |
|---|---|
| SbY | Er1 |
| rEC | Er4 |
| IdL | Er5 |
| Add | |

**Note** On initial start-up, the purity meter may display "Er.1". This is caused by air in the cell and should soon be replaced by a resistivity reading. If "Er.1" does not go out after the pump has run for a minute. or if it appears any time while the EASYpure II RF is in operation, refer to the Troubleshooting section of this manual. ▲

## Operational Modes

**Note** When the unit is first put in Run Mode, the display will show 10.0 for a few seconds. This is an arbitrary number that indicates the unit is running. Any number that appears after 10.0 indicates purity. ▲

**Note** If the unit is in standby and power to the unit is turned off or lost, the unit will return to standby once power is restored. ▲

**Note** Do not put unit into Idle Mode or turn off the EASYpure II RF during non-work hours. Doing so will allow bacterial growth and other contamination of the water in the system. As a result, the system will require a lengthy rinse-up period at the beginning of the work day to achieve high-quality product water. ▲

### Run Mode

Since not all qualities of permissible feedwater will reach maximum resistivity after one pass through the unit's cartridges (especially as the cartridges near exhaustion), the EASYpure II RF has two operational modes; run and standby.

In Run Mode, the pump continuously recirculates water through the cartridges. It is recommended that the EASYpure II RF be left in the run mode during the day. In Run Mode, the purity meter display indicates the resistivity of the water available for draw off. Allow the water's resistivity to rise to the desired purity before drawing off water.

## Standby ("SbY")

In STANDBY ("SbY") mode, the pump will restart for ten minutes out of every hour (i.e 50 minutes off, 10 minutes on). The display reads "rEC" which indicates recirculation. This will allow the unit to produce high quality water quickly upon being placed in Run Mode. It is recommended that the EASYpure II RF be placed in Standby Mode during non-work hours. At the end of the work day, press the STANDBY switch on the front of the EASYpure II RF to place the unit in STANDBY mode for the night. "SbY" will appear on the display.

## Idle Mode ("IdL")

"IdL" indicates the unit is powered and waiting to be placed in Run or STANDBY mode.

# Section 7 Initial Operation

**Note** Cartridge rinse up procedure must be followed after each cartridge and/or filter replacement. ▲

**Note** In the event that the feedwater reservoir is overfilled, allow the excess water to drain from the reservoir through the overflow drain tubing before replacing the Ventgard cap. This will prevent wetting the filter element. ▲

**Warning** Use a properly grounded electrical outlet of correct voltage and current handling capacity. ▲

**Warning** This device is to be used with water feeds only. Sanitizing/ cleaning agents must be used in compliance with instructions in this manual. Failure to comply could result in explosion and personal injury. ▲

## Reservoir Filling and Cartridge Rinse Up

1. Remove the molded plastic Ventgard cap.
2. Carefully pour pretreated feedwater into the reservoir until the water is level with the top of the sight gauge on the front of the unit (see Figure 7-1). Replace the Ventgard cap.
3. The power connection is located on the right side of the unit, in the upper back corner.
4. Determine which power cord you need (this will be based on your country and outlets available in your lab). A 120V power cord with (2) 1.6 amp fuses and 240V power cords with (2) 0.63 amp fuses are provided with the unit.
5. Remove the fuse holder, install the fuses included with the power cord to be used, and reinstall holder.
6. Verify power switch is turned off and attach receptacle end of power cord into the power socket.
7. Plug other end of power cord into facility power. Turn main power on at power entry module.

## Filling and Rinse Up (continued)

8. Place suitable container under draw-off valve. Open draw-off valve.

9. Press START and rinse one complete reservoir volume of water through the cartridges to drain.

10. Close draw-off valve.

11. Remove hose barb connection from draw-off valve. Keep hose barb for future use.

12. Remove the new 0.2 micron final filter assembly from its bag and insert it into the draw-off valve. Gently tighten, turning the filter to the right.

**Note** It is suggested that Teflon® tape be applied to the threads of the 0.2 micron final filter to ensure a tight seal. ▲

13. Refill the reservoir with pretreated water.

14. Open the draw-off valve and flush second reservoir volume of water through the 0.2 micron final filter.

**Note** For more demanding applications where low TOC water is required, a third reservoir volume rinse of cartridges and filter may be necessary. ▲

*Teflon® is a registered trademark of DuPont*

# Section 8 Normal Operation

**Note** When the unit is first put in the Run Mode, the display will show 10.0 for a few seconds. This is an arbitrary number that indicates the unit is running. Any number that appears after 10.0 indicates purity. ▲

## Operation

1. Remove the Ventgard cap. Do not allow water to enter the Ventgard cap.
2. Carefully pour pretreated feedwater into the feedwater reservoir until the water is level with the top of the sight gauge. Replace the Ventgard cap.
3. Turn main power on at power entry module.
4. Press the "START" button on the front of the EASYpure II RF. The EASYpure II RF's pump will begin to run and the purity meter will display "10.0" followed by the number indicating the resistivity of the water in megohm-cm.
5. Allow the water's resistivity to rise to the desired purity before drawing off water.

## Water Draw-Off

1. Remove the protective cap from the 0.2 micron final filter bell.
2. Depress the draw-off lever.
3. When draw off is complete, lift the draw-off lever and replace the protective cap on the 0.2 micron final filter bell.

## Feedwater Replenishment

As water is drawn off from the EASYpure II RF, the feedwater reservoir will require refilling. This will be indicated by a low water level in the sight gauge or by the message “Add” on the display. To refill the reservoir:

1. Remove the Ventgard cap. Do not allow water to enter the Ventgard cap.

2. Carefully pour pretreated feedwater into the feedwater reservoir until the water is level with the top of the sight gauge. Replace the Ventgard cap.

3. Allow the water’s resistivity to rise to the desired purity before drawing off water.

# Section 9 Maintenance and Servicing

Frequency of cleaning is difficult to determine because of variability in feedwater and usage. Cleaning is necessary when residual deposits are evident inside the feedwater reservoir or if a new 0.2 micron final filter clogs rapidly after installation even though the cartridges were properly rinsed before the 0.2 micron final filter was installed. To sanitize the EASYpure II RF, remove the 0.2 micron final filter and attach the hose barb that came installed on the unit. The purification cartridges must be removed and replaced with empty cartridges. These must be ordered separately. Contact Technical Services to order.

**Warning** Disconnect from the power supply prior to maintenance and servicing.

Do not disassemble water lines or remove cartridges where spilled water could contact equipment that requires electrical service. Electrical shock hazard could result.

Refer servicing to qualified personnel. ▲

**Note** Drain plug is not attached to unit; use care when removing it over an open drain to avoid dropping it into the drain. ▲

**Note** The cartridges will still contain water when removed. Therefore, you will want to have a sink, bucket or other waterproof container available to place them in after removal. ▲

**Note** A small amount of water will drain from the cartridge when it is disconnected from the lower socket. Plug the cartridge's lower opening with your finger to minimize water spillage while you finish removing the cartridge. ▲

**Note** Used cartridges may be recycled. See P.U.R.E. information packed with new cartridges. ▲

## System Sanitation

1. Drain the system.

    a. Place the 0.2 micron final filter over a sink or place a bucket or other suitable large container under the filter and draw off water as described under Water Draw-Off in the Operation section of this manual. Draw off water until the water level in the feedwater reservoir is lowered to the point that the reservoir float switch disables the pump. Lift draw-off valve to closed position.

    b. Disconnect the power cord from the power entry module.

    c. Turn the unit around to provide access to the drain plug on the lower edge of the back panel.

    d. Place the drain plug over a sink, or place a bucket or other suitable large container under the drain plug. Remove the drain plug by turning it while pulling until it comes out.

    e. Drain remaining water from the reservoir and system.

    f. Replace the drain plug, taking care to fully insert it into the drain tubing.

    g. Remove cartridges and install empty cartridge tubes according to the instructions in Cartridge Replacement.

    h. Remove 0.2 micron final filter and install the hose barb that was shipped with the system.

2. Remove Ventgard cap and pour 6 liters of pretreated feedwater into reservoir.

3. Add 10ml to 20ml of household chlorine bleach (5.25% sodium hypochlorite) to reservoir.

**Warning** Avoid splashing disinfecting solutions on clothing or skin. Ensure all piping connections are tight to avoid chemical leakage. Ensure adequate ventilation. Carefully follow manufacturer's safety instructions on labels of chemical containers and material safety data sheets. ▲

4. Reconnect power cord to the power entry module and turn unit on. Press the "START" button and put unit into Run Mode.

5. Allow the unit to recirculate the disinfecting solution for thirty minutes. Cycle the draw-off valve to sanitize the valve.

## System Sanitation (continued)

6. Drain the system as described in step 1 of this section.
7. Refill the reservoir with suitable feedwater and recirculate the water through the system for ten minutes.
8. Drain the system as described in Step 1 of this procedure.
9. Remove the empty cartridge tubes according to the instructions in the Cartridge Removal section. Drain and retain the empty cartridge tubes for future use. Remove the hose barb from the draw-off valve.
10. Install and rinse new cartridges according to the instructions in the Cartridge Installation section. Do not reinstall used cartridges or 0.2 micron final filter (they may contain large amounts of bacteria.)
11. Install and rinse new 0.2 micron final filter according to the instructions in the 0.2 Micron Final Filter Replacement in this manual.
12. Reconnect power cord to the power entry module and turn unit on. Press the “START” button.

## Cleaning Resistivity Cell

Refer to Figure 9-1 on following page.

1. Turn off the EASYpure II RF. Remove the power cord.
2. Depressurize the system by opening the unit dispenser draw-off valve, allowing water to drain until no more flows from the valve.
3. Remove the Ventgard cap.
4. Remove the screws securing the EASYpure II RF top cover.

**Warning** Depressurize system prior to opening cartridge access door. ▲

**Note** Ensure a new o-ring is available prior to cleaning resistivity cell. ▲

5. Remove the cover by lifting it straight up.
6. Remove the 0.2 micron final filter. Carefully remove the front cover screws and pull the cover off. Disconnect membrane switch lead from the display board (see Figure 9-1).

## Cleaning Resistivity Cell (continued)

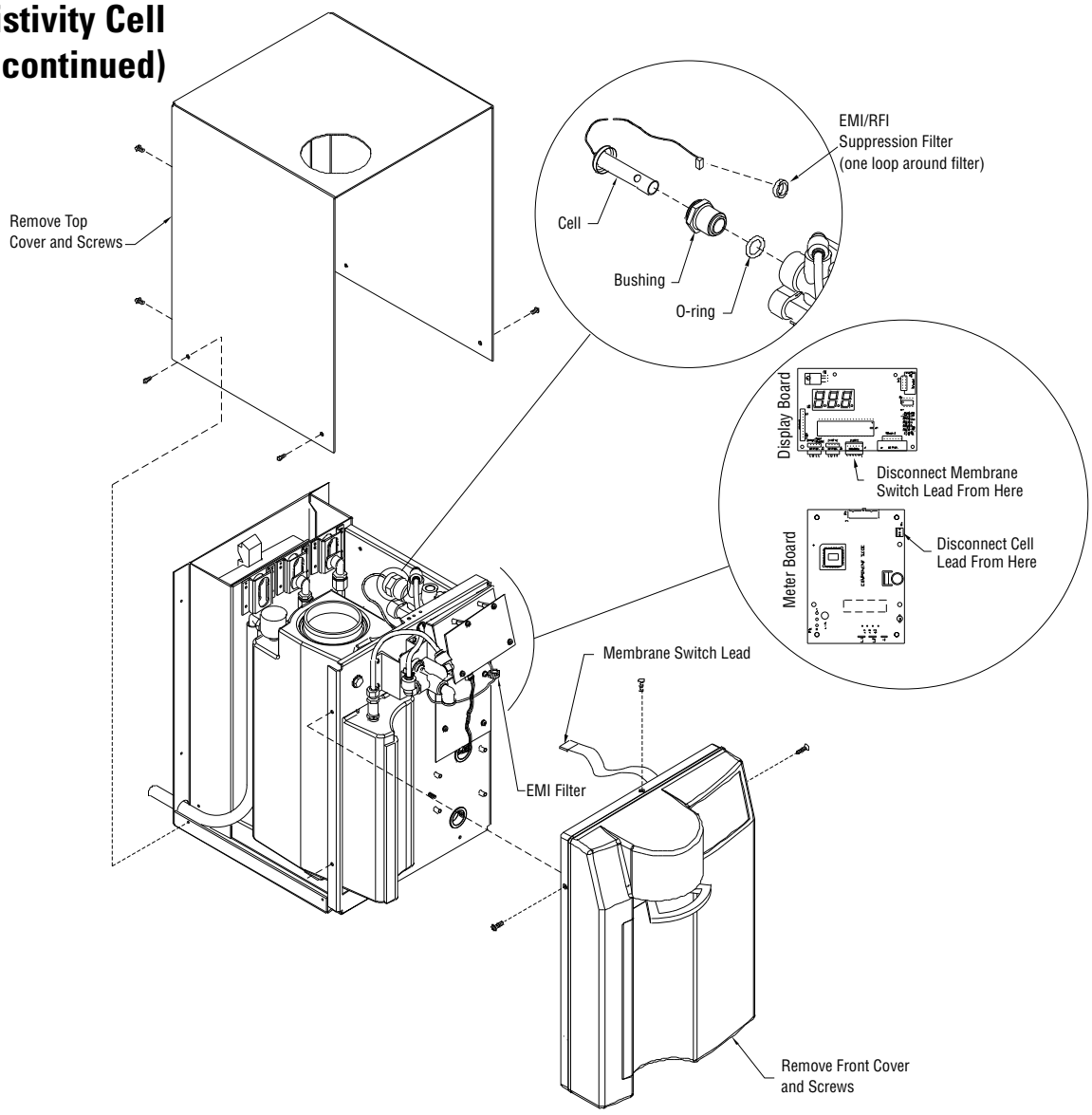



**Figure 9-1.** Disconnecting the Resistivity Cell

7. Disconnect the cell lead from the meter board, remove the EMI/RFI suppression filter and gently pull the cable out of the EASYpure II RF frame. Note orientation.

8. Unscrew and remove the cell.

**Caution** The cell electrodes are etched to improve wetting characteristics. Do not mechanically abrade or damage this surface (i.e. do not clean with a wire brush, sandpaper, etc.).

Do not immerse the entire cell assembly in cleaning solution, only the electrode portion. ▲

## Cleaning Resistivity Cell (continued)

9. Carefully remove and discard the o-ring before cleaning the cell.
10. Wash the cell in a mild detergent solution followed by a 10% Hydrochloric or 10% Sulfuric acid solution (follow acid manufacturers warnings and recommended handling procedures found on package labels and Material Safety Data Sheets). This may be done in an ultrasonic cleaner or with a soft brush.

**Warning** Carefully follow manufacturer's safety instructions on labels of chemical containers and material safety data sheets. ▲

11. Thoroughly rinse the cell in deionized or distilled water following the detergent and/or acid cleaning.
12. After cleaning, reinstall with the replacement o-ring on cell.
13. Reinstall the cell and hand tighten. Reroute the cable up through the housing, reinstall the EMI/RFI suppression filter (loop wire 1 time around filter) and reconnect cell lead to meter board.
14. Reinstall membrane switch lead. While lifting dispense handle, replace the front cover. Reinstall the 0.2 micron final filter.
15. Reinstall the EASYpure II RF top cover.
16. Reinstall the Ventgard cap and 0.2 micron final filter.
17. Reattach the power cord and reconnect the unit to the power supply.
18. Refill the reservoir with feedwater and operate normally.

## General Cleaning Instructions

Wipe exterior surfaces with lightly dampened cloth containing mild soap solution.

## Cartridge Replacement

The frequency with which cartridges will need to be replaced is dependent on your feedwater characteristics, your purity requirements, and your daily usage. Replace the cartridges when the product water purity drops below acceptable levels of resistivity or when organic levels become too high.

Remember, used cartridges can be recycled; see P.U.R.E. information packed with your new cartridges.

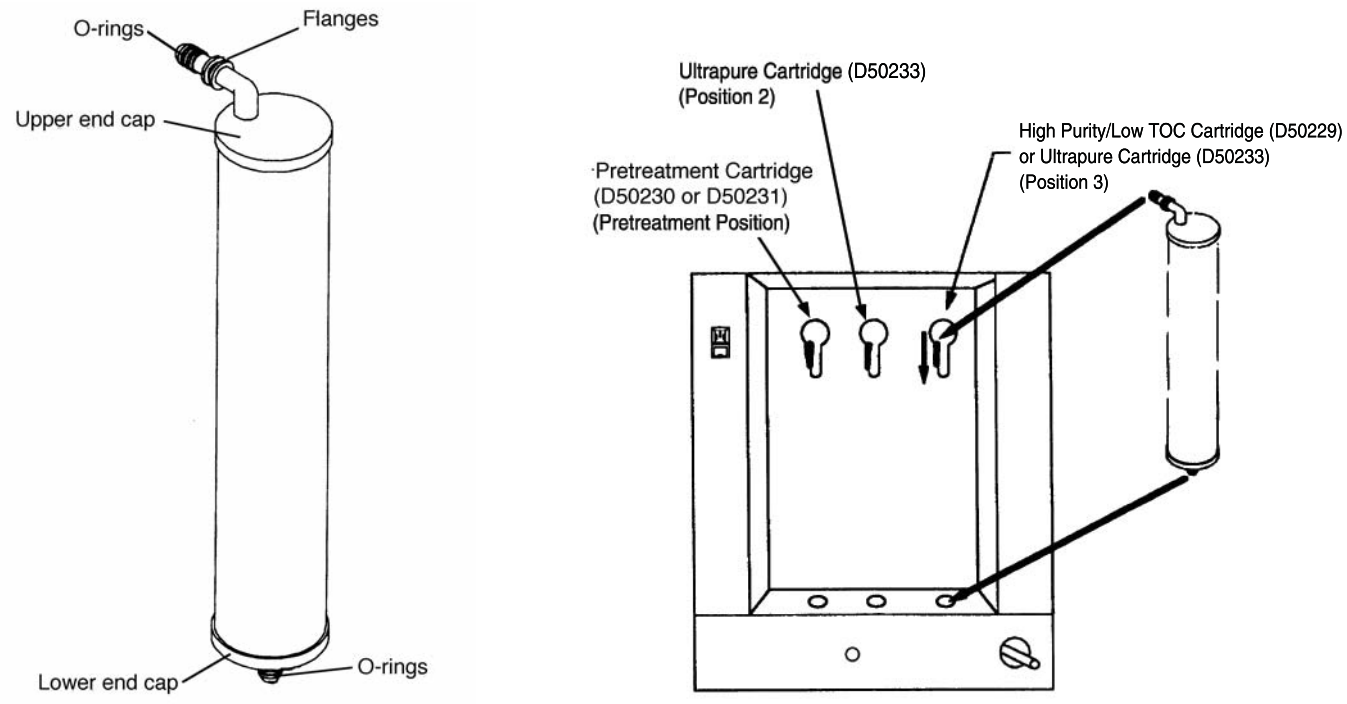



**Figure 9-2.** Cartridge Replacement

## Cartridge Removal

1. Turn off the EASYpure II RF and depressurize system by disconnecting unit feedwater, opening draw-off valve and allowing water to drain from the unit until draining ceases.

**Warning** Depressurize system prior to opening cartridge access door. ▲

2. Open the cartridge access door in the rear of the unit by pushing back the door latch.

3. Remove the cartridge in the pretreatment position by pulling the cartridge straight up until the upper socket is in the keyhole of the keyway. Next pull the cartridge straight out.

4. Remove a new Pretreatment cartridge from its plastic bag.

## Cartridge Removal (continued)

5. Wet the o-rings with water on both end caps.
6. Press upper end cap into pretreatment position until it bottoms out.
7. Lower the cartridge and insert the lower end cap into the lower socket until it is firmly seated.
8. Repeat Steps 3-7 with the EASYpure ULTRApure cartridge, placing it in position 2 and the EASYpure High Purity/Low TOC cartridge, placing it in position 3. Be sure to remove and replace one cartridge at a time.
9. Close the cartridge access door.
10. Remove the old 0.2 micron final filter from the draw-off valve.
11. Install the hose barb into the fitting in the drawoff valve.
12. Turn unit on and open draw-off valve.
13. Press START and rinse one complete reservoir volume of water through the cartridges to drain.
14. Close the draw-off valve.

## 0.2 Micron Final Filter Replacement

Replace the 0.2 micron final filter whenever any of the following conditions occur; the product water flow rate is reduced, you experience bacteria break through when cartridges are replaced, or system is sanitized. The 0.2 micron final filter is shipped assembled with a bell. To replace the 0.2 micron final filter assembly:

1. Remove the old 0.2 micron final filter assembly by turning it to the left to unscrew it from the draw-off valve.

**Note** It is suggested that Teflon tape be applied to the threads of the 0.2 micron final filter to ensure a tight seal. ▲

2. Remove the new 0.2 micron final filter assembly from its bag and insert it into the draw-off valve. Gently tighten, turning the filter to the right.
3. Open the draw-off valve and flush one reservoir volume of water through the 0.2 micron final filter.

**Note** If a newly installed 0.2 micron final filter clogs rapidly after installation, the EASYpure II RF may need to be sanitized to remove bacterial contaminants. See System Sanitization. ▲

## Ventgard Cap Replacement

The purifying media and filter in the Ventgard filter element have a limited capacity. Therefore, the Ventgard cap should be replaced every 120 days. The Ventgard cap is shipped as a complete unit; replacement involves simply removing the new Ventgard cap from its plastic storage bag and placing it on the reservoir. A Ventgard cap can be stored in a cool, dry place almost indefinitely, provided its plastic storage bag has not been opened.

## Fuse Replacement

1. Disconnect the EASYpure II RF from the power supply.
2. Remove the power cord from the power entry module.
3. Pull out the fuse drawer located in the power entry module on the back right side of the unit.
4. Remove old fuses and replace with fuses of the same type and rating. See Replacement Parts list.
5. Replace fuse drawer.
6. Replace power cord.
7. Reconnect unit to power supply

**Warning** Replace fuses with those of the same type and rating. ▲

## Unit Shutdown

If the EASYpure II RF will be inactive for a period up to a month, place the unit in Standby. For periods of time greater than a month, disconnect water and power sources, drain unit, close customer supplied water valve, remove and discard cartridges and final filter. See Sanitization, Cartridge Replacement and 0.2 Micron Final Filter Replacement procedures for reactivation.

# Section 10 Troubleshooting

| Problem | Possible Causes | Action |
|---|---|---|
| EASYpure II RF completely inactive. (Pump not operating, display not lit, etc.)<br>Note: When unit is powered and not operating, nor in standby, "IdL" will normally be displayed. | No electrical power to EASYpure II RF. | Ensure that the EASYpure II RF power cord is connected to a live power source and completely plugged into electrical outlet. |
| | Membrane switch leads not connected. | Disconnect unit from power. Check and reconnect. See Figure 9-1. |
| | Main power switch off. | Place to "On" position. |
| | Fuses blown or not installed properly. | Check to make sure proper fuses were installed. |
| | | Replace the fuses as indicated in the Fuse Replacement section. |
| Pump does not run. Display showing purity information. | Loose wire connection to pump. | Ensure pump is properly connected to display/control board (PC1286X3). |
| | Display/control board is defective. | Replace board. Call Technical Services. |
| | Pump worn out or defective. | Replace pump. Call Technical Services. |
| Recirculated water will not rinse up to desired purity level. | Exhausted cartridge | Replace the cartridge as indicated in the Cartridge Replacement section. |
| | Cartridges out of order. | Install the cartridges in the proper order as indicated in the Cartridge Installation section. |
| | Dirty resistivity cell. | Clean resistivity cell as indicated in the Maintenance and Servicing section. |
| | Water path restriction. | Check tubing for constriction (kinks) or blockages. |
| | Resistivity meter board out of tolerance. | Replace board (PCX70). Call Technical Services. |
| Reduced or no product flow from the 0.2 filter assembly | 0.2 micron final filter clogged. | Replace the 0.2 filter assembly as indicated in 0.2 Micron Final Filter Replacement section. |
| | Water path restriction | Check tubing. |

| **Problem (cont.)** | **Possible Causes (cont.)** | **Action (cont.)** |
|---|---|---|
| 0.2 micron final filter clogs rapidly after replacement. | Possible feedwater contamination. | Call Technical Service for possible feedwater testing. |
| | Cartridges not properly rinsed up before use | Rinse up cartridges as described in Cartridge Rinse-Up Procedures. Replace the 0.2 micron final filter assembly as indicated in the 0.2 Micron Final Filter Replacement section. |
| | EASYpure II RF contaminated with bacteria. | Sanitize EASYpure II RF according to System Sanitization section. Replace the 0.2 micron final filter assembly as indicated in the 0.2 Micron Final Filter Replacement section. |
| Short cartridge life. | Cartridges being used are beyond expiration date. | Check the expiration date. Cartridges begin to lose capacity after being stored two years from the date of manufacture. Replace the cartridges with unexpired ones. |
| | Change in feedwater characteristics. | Call Technical Service for possible feedwater testing. |
| | Increased product water usage. | Verify usage. |
| Water leakage inside EASYpure II RF. | Loose connections. | Tighten connections. |
| | Tubing is not inserted completely. | Insert tubing completely. See Push-to-Connect Tubing Installation section of this manual. |
| | Missing or defective cartridge o-rings | Install or replace cartridge o-rings. |
| | Leak at cartridge. | Make sure cartridge access door is closed and latched. |
| Water leakage at a final filter | Not installed far enough. | Install or screw in further and/or add Teflon tape. |

# Error Conditions

| Problem | Possible Causes | Action |
|---|---|---|
| Display reads "Er1". (Purity data error) | Air in system. | Purge air from system by drawing off water according to the instructions in the Operation section. |
| | Resistivity cell not connected to circuit board. | Check resistivity cell lead connections. (P1 on meter board, PCX70) |
| | Resistivity cell dirty. | Clean cell and reinstall. |
| | Resistivity cell out of tolerance. | Replace resistivity cell. |
| | Meter board out of tolerance. | Call Technical Service. |
| Display reads "Er4". (Cell temperature sensor error) | Resistivity cell not connected to circuit board. | Call Technical Service. |
| | Resistivity cell dirty. | Replace resistivity cell. |
| | Meter board out of tolerance. | Call Technical Service. |
| Display reads "Er5". (Meter board communication error) | Meter board needs to be reset. | Turn unit "Off" and back "On". |
| | Meter board not connected to display/control board. | Call Technical Service. |

# Section 11 Replacement Parts

Consumable parts are those required to support the day-to-day operation of this equipment. We've established two types of consumables; those items that must periodically be replaced to maintain performance (filters, resin cartridges, etc.) and other items of limited life (indicator lights, fuses, etc.) that you can expect to replace on a more or less random basis. Where practical, we recommend the frequency of replacement, or provides information on life expectancy from which you may calculate a replacement interval compatible with your usage pattern.

The replacement of consumable parts is discussed in the Maintenance and Servicing section to assist you in accomplishing your own service.

Consumables may be ordered separately and in some cases, as an expendables kit. Check with your Thermo Scientific representative for additional information on the expendables kit.

| Description | Catalog No. | Recommended Quantity | Max. Shelf Life |
|---|---|---|---|
| EASYpure Kit Ultra low Organics Deionized Feed | D502124 | 1 | 2 years[1] |
| EASYpure Kit Ultra low Organics Distilled or RO Feed | D502125 | 1 | 2 years[1] |
| EASYpure Kit Type I Deionized Feed | D502126 | 1 | 2 years[1] |
| EASYpure Kit Type I Distilled or RO Feed | D502127 | 1 | 2 years[1] |
| EASYpure High Purity/Low TOC Cartridge | D50229 | 1 | 2 years[1] |
| Pretreatment Cartridge DI Feed | D50230 | 1 | 2 years[1] |
| Pretreatment Cartridge RO - Distilled Feed | D50231 | 1 | 2 years[1] |
| Ultrapure Mixed Bed Cartridge | D50233 | 1 | 2 years[1] |
| 0.2 Micron Final Filter and Bell Assembly | D3750 | 2 | N/A |
| Fuse, Power Entry: | | | |
| 100-120 volt (slow blow 1.6 amp) | FZX47 | 2 | N/A |
| 240 volt (IEC127 timelag 0.63 amp) | FZX54 | 2 | N/A |
| Ventgard Cap | CV703X4A | 1 | N/A |
| Empty Cartridges for Sanitization | D7034 | 1 | N/A |

[1] *This is reference information. Please check actual expiration dates on individual cartridges for shelf life end dates. Cartridges used past the shelf lifetimes will exhibit decreased capacity.*

## General Maintenance

General maintenance parts are defined as laboratory level repair parts which do not require great expertise or special tools for installation. We recommend that you stock the general maintenance parts as an aid to ensuring the continued operation of this equipment.

| Description | Catalog No. | Recommended Quantity |
|---|---|---|
| Check valve | 02214 | 1 |
| Hose barb fitting | 05930 | 1 |

## Safety Stock

For critical applications where performance with minimum downtime is required, we recommend that you maintain a local stock of those parts listed in the General Maintenance parts and Safety Stock sections.

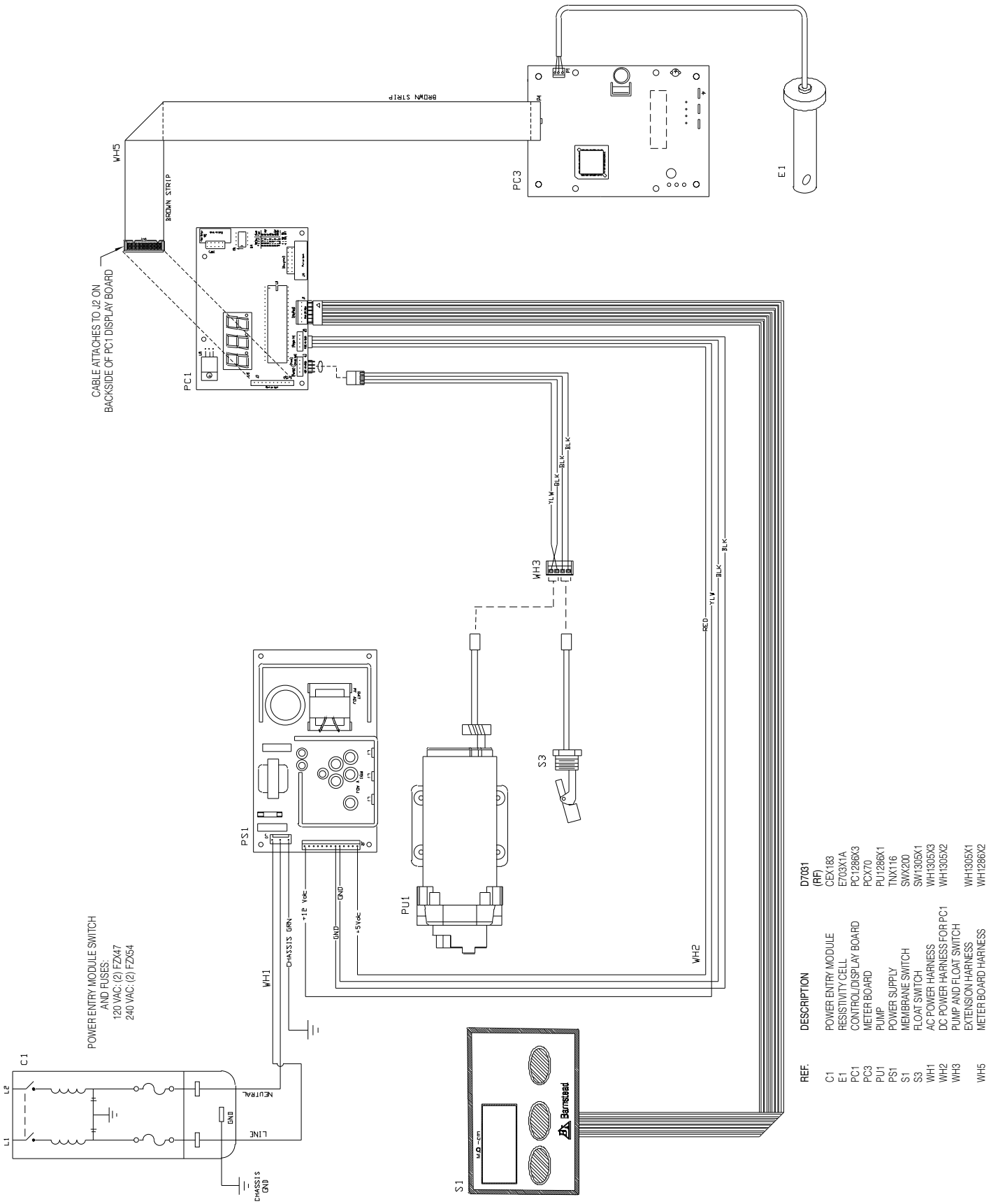
| Description | Catalog No. | Recommended Quantity |
|---|---|---|
| Replacement Control/Display PCB | PC1286X2 | 1 |
| Resistivity Meter Board | PCX70 | 1 |
| Pump and Motor Assy | | |
| 100-240 Volt | PU1286X1 | 1 |
| Resistivity Cell | E703X1A | 1 |
| Resistivity Cell O-ring | GSX29 | 1 |
| Draw-off Valve Assy | PM1305X1 | 1 |
| Float Switch | SW1305X1 | 1 |
| Power Supply | TNX116 | 1 |

## Ordering Procedures

Please refer to the Specification Plate for the complete model number, serial number, and series number when requesting service, replacement parts or in any correspondence concerning this unit.

All parts listed herein may be ordered from the Thermo Scientific dealer from whom you purchased this unit or can be obtained promptly from the factory. When service or replacement parts are needed, check first with your dealer. If the dealer cannot process your request, then contact our Technical Services Department.

Prior to returning any materials, please contact our Technical Services Department for a “Return Materials Authorization” number (RMA). Material returned without an RMA number will be refused.




| REF. | DESCRIPTION | D7031 (RF) |
|---|---|---|
| C1 | POWER ENTRY MODULE | CEX183 |
| E1 | RESISTIVITY CELL | E703X1A |
| PC1 | CONTROL/DISPLAY BOARD | PC1286X3 |
| PC3 | METER BOARD | PCX70 |
| PU1 | PUMP | PU1286X1 |
| PS1 | POWER SUPPLY | TNX116 |
| S1 | MEMBRANE SWITCH | SWX200 |
| S3 | FLOAT SWITCH | SW1305X1 |
| WH1 | AC POWER HARNESS | WH1305X3 |
| WH2 | DC POWER HARNESS FOR PC1 | WH1305X2 |
| WH3 | PUMP AND FLOAT SWITCH EXTENSION HARNESS | WH1305X1 |
| WH5 | METER BOARD HARNESS | WH1286X2 |

Thermo Scientific
401 Millcreek Road
Marietta, Ohio 45750
United States

www.thermofisher.com

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